

INTENSIVE EVALUATION OF SMOLT PRODUCTION
Project 83-07 (DE-B179-84BP13381)
Quarterly Progress Report for
July - September 1990

by

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PREPARED FOR

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SUMMARY OF SIGNIFICANT ACTIVITIES OR RESULTS

During July project personnel conducted physical habitat surveys on 11 study sections in the Crooked River (CR) study area and on 16 study sections in the upper Salmon River (USR) study area. We also conducted parr density surveys on 33 study sections in the CR study area, and on 71 study sections in the USR study area. Preliminary analysis of the parr density data is summarized in Tables 1, 2, 3, and 4.

We outplanted adult chinook salmon from the Sawtooth Hatchery into three USR tributaries from July 18 - 24. Fifteen pair were released into Frenchman Creek, 14 females and 16 males were released into Pole Creek, and 11 females and 15 males were released into Smiley Creek. Adult chinook salmon were also released into CR on 9-17 (65 females; 92 males). A total of 8 female pre-spawning mortalities were observed from this outplant.

We had the U. S. Forest Service make repairs to the rock weir used for the Crooked River emigration trap.

In August project activities concentrated on collecting and PIT tagging parr from both study areas, and the results are summarized in Table 5. Repairs were made to our trap support structure at the Sawtooth Hatchery weir in order to get the trap operating efficiently. We also set up and began to operate both migrant traps, and completed the second draft of the 1989 Annual Report.

During September we continued trapping and PIT tagging parr at our two emigration traps. We conducted ground redd counts in both study areas throughout the probable spawning area. Total redds counted were 107 for the USR (Table 6), and 10 for CR. The ground count on CR was conducted just prior to the adult outplant there. Redd count results from the stream sections that received adult outplants were: Pole Creek (9), Frenchman Creek (14), and Smiley Creek (9). Plans to retrieve 1990 juvenile PIT tag detections from smolt collecting dams were developed with Paul Williams.

Throughout the quarter we collected creel census data on CR to evaluate angler harvest and determine impact on anadromous parr populations.

OCTOBER - DECEMBER GOALS

1. Complete 1989 annual report.
2. Write July - September Quarterly Report.
3. Continue trapping and PIT tagging emigrating parr until emigration ceases.
4. Move project headquarters to office trailer at Eagle Hatchery.
5. Correct, translate, and then send all summer and fall 1990 PIT tag files to the PMFC mainframe computer.

OCTOBER - DECEMBER GOALS (con't)

6. Order all major equipment needed for the 1991 field season.
7. Arrange to have minor repairs made to smolt traps.
8. Present 1990 emigration results at IDFG Research Section Meeting.

NONEXPENDABLE OR SENSITIVE EQUIPMENT PURCHASED

1. No expendable or sensitive equipment was purchased during this quarter.

PROBLEMS OR PROJECT DELAYS

1. We had to spent 15 - 20 man days repairing the trap support structure for our Sawtooth weir trap and were unable to conduct a study on long term mortality of PIT tagged parr in streams.

Table 1. July density (number/100 m²) of age 0 chinook in the upper Salmon River, 1987 to 1990

Stratum	1987	1988	1989	1990
Salmon River				
3, 4	7.00	13.80	9.7	0.40
5, 6	0.28	4.10	3.6	0.10
7	20.25	13.26	32.9	3.20
8	10.33	3.86	0.6	0
9	7.42	1.44	2.6	7.10
10	0.11	0	31.9	9.80
Salmon River side channels				
3, 4	-	16.00	24.6	1.00
5, 6	-	17.93	0.6	1.20
7	-	16.12	85.7	4.70
8, 9, 10	-	6.75	1.7	0
Pole Creek				
1	25.73	1.95	0.9	0.00
2	2.89	4.25	11.2	0.30
3	0	0.12	55.8	12.60
4	0	0	0.3	0
5	-	-	0	0
Alturas Lake Creek				
1	18.34	8.64	20.3	1.94
2	0.60	0.91	2.5	0.37
3	0.06	0	7.7	0.11
Smiley Creek				
1	35.17	6.94	14.1	0.31
2	1.10	13.50	23.4	0
Beaver Creek				
1	-	2.12	0.4	0
2	-	0.39	20.8	0.14
Frenchman Creek				
1	0	0.61	4.0	0.36
2	0	41.39	109.5	10.15

Table 2. July density (number/100 m²) of age 1+/age 2 steelhead parr in the upper Salmon River, 1987 to 1990

Stratum	1987	1988	1989	1990
Salmon River				
3, 4	0.05/0.02	0.20/0.08	0.02/0.1	0.02/0.07
5, 6	0.01/0.02	0.07/0.05	0/0	0/0
7	0.72/0.00	0.37/0.12	0.2/0.2	0.29/0.07
8	0.39/0.22	0.38/0.11	0.0/0.7	0/0
9	8.51/2.09	2.75/0.80	2.6/0.9	4.47/0.42
10	7.27/2.37	3.57/2.89	8.4/4.4	4.54/0.50
Salmon River side channels				
3, 4	-	0.56/0.0	0.2/0.2	0.22/0
5, 6	-	0/0	0.0	0.0
7	-	0/0	0.0/0.3	0/1.2
8, 9, 10	-	0.25/0.0	0/0	0/0
Pole Creek				
1	2.98/1.16	2.05/0.59	0.1/0.1	0.17/0
2	5.11/1.60	0/0	0.5/0.3	0.25/0
3	0.0/0.13	0/0	0.3/1.2	0.17/0.12
4	1.33/1.33	4.75/0.50	0.8/0.9	0/0.16
5	0.0/0.13	0.0/0.73	0/0	0/0
Alturas Lake Creek				
1	0.83/0.03	0.58/0.05	0.1/0.1	0.09/0.06
2	0.90/0.47	0.38/0.31	0.0/0.1	0.05/0
3	0/0	0.12/0.12	0.1/0.1	0.06/0.06
Smiley Creek				
1	0.18/0.56	0/0	0.5/0.6	0.50/0.26
2	0.0/0.05	0.16/0.05	0.1/0.02	0/0.08
Beaver Creek				
1	-	0.48/0.0	0.1/0.1	0.62/0.35
2	-	0.20/0.02	0/0	1.97/0.30
Frenchman Creek				
1	1.79/2.23	0.0/0.61	1.5/2.3	2.57/0.95
2	0/0	0.11/0.11	0.0/0.1	0/0

Table 3. Density (number/100 m²) of age 0 chinook in Crooked River, August 1986 to 1990

Stratum	1986	1987	1988	1989	1990
Headwaters	-	-	0.03	0.1	0
I	13.97	3.01	23.77	28.4	0.02
II	1.08	16.47	19.70	19.7	0.03
Canyon	-	-	8.05	10.3	0.97
III	57.80	22.33	36.64	58.7	4.99
IV	71.75	15.37	42.21	59.0	4.67
Relief Creek	-	-	0.82	45.5	0
Connected Ponds A	62.86	3.20	65.39	206.1	0.56
Ponds B	-	-	-	268.0	8.05

(a) In 1986 - 1988 the data for connected ponds was combined and is reported here as Ponds A.

Table 4. Density (number/100 m²) of age 1+/age 2+ steelhead parr in Crooked River, August 1986 to 1990

Stratum	1986	1987	1988	1989	1990
Headwaters	-	-	-	0.2/0.3	0.37/0.14
I	6.80/0.17	4.27/0.07	5.21/0.15	1.9/0.8	0.21/0.28
II	11.67/1.07	10.82/3.74	8.82/0.38	4.4/1.4	1.48/1.29
Canyon	-	-	11.44/1.16	4.1/2.1	0.97/1.18
III	6.20/0.20	6.09/2.82	10.32/0.50	6.5/1.8	2.54/1.37
IV	7.15/0.30	7.24/1.49	7.15/7.12	3.4/1.5	1.50/1.08
Relief Creek	-	-	19.10/0.55	5.2/1.8	0.20/0.06
Connected					
Ponds A	4.73/0.33	42.40/4.80	17.84/1.66	7.2/1.7	1.20/0.90
Ponds B	-	-	-	10.1/2.2	0.13/0.32

(a) In 1986 - 1988 the data for connected ponds was combined and is reported here as Ponds A.

TABLE 5. SUMMARY OF PIT TAGGING OPERATIONS; AUGUST 1990

LOCATION: METHOD	NUMBER COLLECTED	NUMBER TAGGED	COLLECTING MORTS (#/%)	TAGGING MORTS (#/%)	24 HOUR MORTS (#/%)

CHINOOK					
SALMON R.					
SEINED	1,292	812	8 / 0.6	0 / 0	5 / 0.4
SHOCKED	264	263	1 / 0.4	0 / 0	2 / 0.8
OVERALL	1,556	1,082	9 / 0.6	0 / 0	7 / 0.4
CROOKED R.					
SEINED	681	611	5 / 0.7	9 / 1.3	10 / 1.5
SHOCKED	166	156	1 / 0.6	1 / 0.6	2 / 1.2
OVERALL	847	767	6 / 0.7	10 / 1.2	12 / 1.4

LOCATION: METHOD	NUMBER COLLECTED	NUMBER TAGGED	COLLECTING MORTS (#/%)	TAGGING MORTS (#/%)	24 HOUR MORTS (#/%)

STEELHEAD					
SALMON R.					
SEINED	74	74	0 / 0	0 / 0	0 / 0
SHOCKED	754	752	2 / 0.3	0 / 0.1	0 / 0.1
OVERALL	828	826	2 / 0.2	1 / 0.1	0 / 0.1
CROOKED R.					
SEINED	124	124	0 / 0	0 / 0	0 / 0
SHOCKED	440	438	2 / 0	2 / 0.2	1 / 0.2
OVERALL	564	562	2 / 0	1 / 0.1	2 / 0.4

Table 6. 1990 CHINOOK SALMON REDD COUNTS FOR THE UPPER SALMON RIVER

<u>DATE</u> <u>TRANSECT</u>	<u>GROUND</u> <u>SECTION</u>	<u>#REDDS</u>	<u>AIR</u> <u># REDDS</u>	<u>SECTION</u>
9/3 NS-15	Sawtooth weir to Williams Cr.	38		
9/4 NS-15	Williams Cr. to Fisher Cr.	28	50	Weir to Hell Roaring Bridge
9/1 NS-15	Fisher CR. to Alturas Lk Cr.	1	2	
9/7 NS-15	Alturas Lk Cr to Busterback Diversion	0	1	
9/5 NS-15	Busterback Div. to headwaters	0	0	
9/5 NS-12	Alturas Lk Cr mouth to Diversion	7	0	Alturas Lk Cr mouth to Diversion
9/5 NS-12	Alturas Lk Cr diversion to Alturas Lake	4	2	Alturas Lk Cr diversion to Alturas Lake
9/5 NS-13	Pole Creek mouth to Diversion to	0	2	Mouth to Fish screen
9/6 NS-13	Pole Creek Diversion to Headwater	9	3	Sections not counted from air
9/6	Frenchman Cr. lower meadow to beaver ponds	11	-	
9/6	Smiley Creek lower bridge to upper bridge	9	-	
TOTAL		107	60	

Total chinook Salmon escapement above Sawtooth weir was 615.
(167 females: 390 males: 58 jacks).

The Air count was conducted on September 7-8, 1990

FROM Russ Kiefer

DATE 1/24/91

TO El Sarks, V. Moore, D. Pithan, S. Yunt, C. Petrovsky, S. Kiefer, B. Bowler, T. Heluketz,
J. Lukars, & T. Rogers.

SUBJECT Update to 1990 steelhead redd count report.

On 12/10/90 I distributed a memo where I reported we observed 60 steelhead redd in the upper Salmon River and Sawtooth Hatchery reported releasing 47 steelhead females. However, I did not report that 105 adult female steelhead ~~were captured~~ from Selkome's Hatchery were outplanted into the upper Salmon River.

Russell B. Kiefer
SIGNATURE